CLAIMS:

1. A network wherein a signal is transmitted in optical frequency division multiplexing fashion to a node to which at least one first optical communication path is connected, said signal transmission being effected through a second optical communication path, and the multiplexed and transmitted signal is distributed to a terminal through said first optical communication path, and wherein said node selects a signal having an optical frequency to be sent to said first optical communication path from the multiplexed and transmitted signal and optical frequency converts the selected signal to be distributed to said first optical communication path.

2. A network according to Claim 1, wherein a specific signal is selected from said multiplexed and transmitted signal in accordance with each of said first optical communication paths and is optical frequency converted to be distributed to said first optical communication path.

3. A network according to Claim 1, wherein a specific signal is selected from said multiplexed and transmitted signal and is optical frequency converted to be distributed to said first optical communication paht.

4. A network according to Claim 1, wherein a plurality of signals are distributed to said first optical communication path in optical frequency division multiplexing fashion.

5. A network according to Claim 1, wherein said optical frequency conversion is made for each of the selected signals having an optical frequency to be sent to said first optical communication path.

6. A network according to Claim 1, wherein said optical frequency conversion is made simultaneously for a plurality of selected signals having an optical frequency to be sent to said first optical communication path.

7. A network according to Claim 1, wherein the optical frequency of the selected signal to be sent to said first optical communication path by said optical frequency conversion is identical regardless of said first optical communication path.

8. A network according to Claim 1, wherein the optical frequency of the selected signal to be sent to said first optical communication path by said optical frequency conversion is part of a predetermined frequency group.

9. A network according to Claim 1, wherein the optical frequency of the selected signal to be sent to said first optical communication path by said optical frequency conversion is a frequency corresponding to a terminal.

10. A network according to Claim 1, wherein assignment of frequency for multiplex transmission in said second optical communication path is made dynamically.

11. A network according to Claim 1, wherein at

least one of frequencies of multiplexed signals on said second optical communication path is assigned for control.

12. A network including a node for collecting signals from terminals through a third optical communication paths and for producing said collected signals to a fourth optical communication path, wherein signals transmitted from said third optical communication paths are optical frequency converted and are then optical frequency multiplexed to be sent to said fourth optical communication path.

13. A network according to Claim 12, wherein transmission of signals in said third optical communication paths is made in optical frequency division multiplexing fashion.

14. A network according to Claim 12, wherein transmission of signals in said third optical communication paths is made in optical frequency division multiplexing fashion and optical frequency conversion is made for each of frequency demultiplexed signals.

15. A network according to Claim 12, wherein transmission of signals in said third optical communication paths is made in optical frequency division multiplexing fashion and a plurality of signals are optical frequency converted simultaneously.

16. A network according to Claim 12, wherein optical frequency of signals transmitted through said third optical communication paths is identical regardless

of said third optical communication paths.

17. A network according to Claim 12, wherein optical frequency of signals transmitted through said third optical communication paths is part of a predetermined frequency group.

18. A network according to Claim 12, wherein optical frequency of signals transmitted through said third optical communication paths is a frequency corresponding to a terminal.

19. A network according to Claim 12, wherein assignment of frequency for multiplex transmission in said fourth optical communicaiton path is made dynamically.

20. A network according to Claim 12, wherein at least one of frequencies of multiplexed signals on said second optical communication path is assigned for control.

21. A network comprising a single optical fiber cable constituting said first optical communication path defined in Claim 1 and said third optical communication path defined in Claim 12.

22. A network according to Claim 21, wherein distribution of one or a plurality of signals and collection of one or a plurality of signals in said optical communication path are made in optical frequency division multiplexing fashion simultaneously.

23. A network comprising a single optical fiber cable constituting said second optical communication

path defined in Claim 1 and said fourth optical communication path defined in Claim 12.

24. A network according to Claim 23, wherein distribution of one or a plurality of signals and collection of one or a plurality of signals in said optical communication path are made in optical frequency division multiplexing fashion simultaneously.

25. A network according to Claim 23, wherein both ends of said optical communication path are connected to said node.

26. A network according to Claim 25, wherein a direction of transmitting signals in said optical communication path is unidirectional.

27. A network according to Claim 1, wherein signal is distributed to one or a plurality of said terminals connected to said optical communication path by optical demultiplexing from said first optical communication path.

28. A network according to Claim 1, wherein signal is distributed to one or a plurality of said terminals connected to said optical communication path by optical division from said first optical communication path.

29. A network according to Claim 1, wherein signal is distributed to one or a plurality of said terminals connected to said optical communication path by optically dividing optical signal from said first optical communication path and selecting one specific optical frequency or a plurality of optical frequencies.

30. A network according to Claim 12, wherein signal from one or a plurality of said terminals connected to said optical communication path is collected by optical multiplexing to said third optical communication path.

31. A network according to Claim 25, wherein signal is distributed to one or a plurality of terminals connected to said optical communication path by optical demultiplexing from said optical communication path and part or all of optical frequencies of signals distributed to said terminals are used to collect signals from said terminals by optical multiplexing.

32. A network according to Claim 1, wherein selection and optical frequency conversion of said signal are made simultaneously.

33. An optical frequency division multiplexing network including a plurality of terminals, a plurality of first optical communication paths connected to said plurality of terminals, respectively, a node connected to said plurality of first optical communication paths and a second optical communication path for connecting said node to outside, wherein said node comprises means for selecting signals having optical frequencies to be sent to said plurality of terminals, respectively, from signals transmitted through said second optical communication path in optical frequency division multiplexing fashion, means for converting said selected signals to signals having a single optical frequency, and means for producing said converted signals to said

terminals through said first optical communication paths, respectively.

34. An optical frequency division multiplexing network including a plurality of terminals, a plurality of first optical communication paths connected to said plurality of terminals, respectively, a node connected to said plurality of first optical communication paths and a second optical communication path for connecting said node to outside, wherein said node comprises means for converting signals having a single optical frequency transmitted from said terminals through said first optical communication paths, respectively, to signals having optical frequencies corresponding to said terminals, respectively, and means for producing said converted signals to the outside through said second optical communication paths in optical frequency division multiplexing fashion.